AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1. (original) A process of preparing a metal oxide film comprising:

applying a solution containing a metal precursor and a soluble polymer onto a substrate to form a polymer and metal containing layer thereon, said polymer characterized as having binding properties for said metal precursor; and,

heating said substrate in an oxygen-containing atmosphere at temperatures characterized as sufficient to remove said polymer from said polymer and metal containing layer and form a metal oxide film.

Claim 2. (original) The process of claim 1 wherein said metal is selected from the group consisting of alkali metals, alkaline earth metals, main group metals, transition metals, and lanthanide metals.

Claim 3. (original) The process of claim 1 wherein said metal is selected from the group consisting of main group metals.

Claim 4. (original) The process of claim 1 wherein said metal is selected from the group consisting of transition metals.

Claim 5. (original) The process of claim 1 wherein said metal is selected from the group consisting of lanthanide metals.

Claim 6. (original) The process of claim 1 wherein said metal is selected from the group consisting of alkaline earth metals.

Claim 7. (original) The process of claim 1 wherein said metal oxide film is characterized as epitaxial.

Claim 8. (original) The process of claim 2 wherein said metal oxide film includes at least two of said metals.

Claim 9. (original) The process of claim 1 wherein said metal oxide film is epitaxial europium oxide and said substrate is selected from the group consisting of lanthanum aluminum oxide, strontium titanate and lanthanum strontium aluminum tantalate.

Claim 10. (original) The process of claim 1 wherein said solution includes a solvent selected from the group consisting of water, lower alcohols, acetone, tetrahydrofuran, polyproylene carbonate, acetonitrile, ethylacetate, acetic acid, and mixtures thereof.

Claim 11. (original) The process of claim 10 wherein said solvent is water and is organic-solvent free.

Claim 12. (original) The process of claim 10 wherein said solution further includes a metal-binding ligand or salts thereof.

Claim 13. (original) The process of claim 12 wherein said solution further includes EDTA or salts thereof.

Claim 14. (original) The process of claim 1 wherein said metal oxide film is zinc oxide and said substrate is c-cut sapphire.

Claim 15. (original) The process of claim 1 wherein said metal oxide film is titanium oxide and said substrate is r-cut sapphire.

Claim 16. (original) The process of claim 14 wherein said titanium oxide is of a rutile form.

Claim 17. (original) The process of claim 1 said metal oxide film is titanium oxide and said substrate is lanthanum aluminum oxide.

Claim 18. (original) The process of claim 15 wherein said titanium oxide is of an anatase form.

Claim 19. (original) The process of claim 1 wherein said metal oxide film is a yttrium barium copper oxide film.

Clailm 20. (original) The process of claim 11 wherein said metal oxide film is a yttrium barium copper oxide film.

Claim 21. (original) The process of claim 19 wherein said yttrium barium copper oxide film is epitaxial and is a high temperature superconductor.

Claim 22. (original) The process of claim 20 wherein said yttrium barium copper oxide film is epitaxial and is a high temperature superconductor.

Claim 23. (original) The process of claim 1 wherein said soluble polymer is selected from the group consisting of polyethylenimine, carboxylated polyethylenimine, polyacrylic acid, polypyrolidone, and poly(ethylene-maleic acid).

Claim 24. (original) The process of claim 1 wherein said soluble polymer is polyethylenimine.

Claim 25. (original) The process of claim 1 said metal oxide film is barium titanium oxide.

Claim 26. (original) The process of claim 1 said metal oxide film is strontium titanium oxide.

Claim 27. (original) The process of claim 1 wherein said solution is applied by a process selected from the group consisting of spin coating, dipping, spraying and ink jetting onto said substrate.

Claim 28. (original) A composition of matter comprising a solution of at least two metal precursors and a soluble polymer, said polymer characterized as having binding properties for said at least two metal precursors, wherein said at least two metal precursors are present in a pre-selected ratio.

Claim 29. (original) The composition of matter of claim 28 wherein said composition is a solution of said at least two metal precursors and a soluble polymer.

Claim 30. (original) The composition of claim 28 wherein said soluble polymer is selected from the group consisting of polyethylenimine, carboxylated polyethylenimine, polyacrylic acid, polypyrolidone, and poly(ethylene-maleic acid).

Claim 31. (original) The composition of claim 29 wherein said solution includes a solvent selected from the group consisting of water, lower alcohols, acetone, tetrahydrofuran, polyproylene carbonate, acetonitrile, ethylacetate, acetic acid, and mixtures thereof.

Claim 32. (original) The composition of claim 29 wherein said solvent is water and is organic-solvent free.